BRCAK, Jaroslav
SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: Not given

Affiliation: Biologic Institute, Czechoslovak Academy of Sciences, Department of Phytopathology, Prague (Biologicky Ustav CSAV oddeleni fytopatologie)

Source: Prague, Biologia Plantarum, Vol 3, No 4, 1961; pp285 -290
Data: Biologic and electron microscope study of "Strichelkrankheit" (striate disease?) of tomatoes.

CSAV: Ceskoslovenska Akademia Ved)

GPO 981643

BRCAK, Jaroslav

Interference of the tobacco mosaic virus with the cucumber mosaic virus on tobacco plants. Biologia plantarum 4 no.3:176-181 '62.

1. Phytopathologishche Abteilung des Instituts fur experimentelle Botanik der Tschechoslowakischen Akademie der Wissenschaften, Na Karlovce 1, Praha-Dejvice.

＊

BRCAK, Jaroslav

Biological and electronmicroscopic determination of streak in tomatoes. Biologia plantarum 3 no.4:285-290 '61.

1. Phytopathologische Abteilung des Biologischen Institutes der Tschechoslowakischen Akademie der Wissenschaften, Praha 6 - Dejvice, Na Karlovce 1.

BRCAK, Jaroslav

Identification of the yellows virus and the beet mosaic virus by electronic microscope and biological methods. Listy cukrovar 80 no.11:281-287 N '64.

1. Department of Phytopathology of the Institute of Experimental Botany of the Czechoslovak Academy of Sciences, Prague.

DJORDJEVIC-CAMBA, Djordje; BURIJAN, Jovan; BRCELJ, Stefanija

A case of parathyroprival tetany treated with bone grafting.
Srp arhiv lekar 82 no.2:241-245 F '54.   (KBAL 3:7)

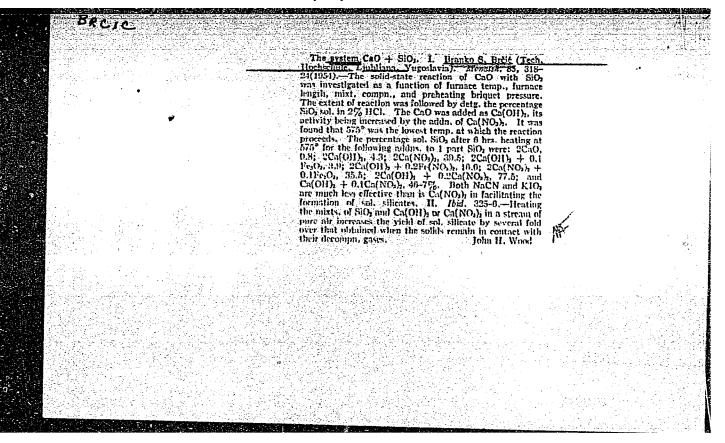1.] Hirurska klinika Medicinskog fakulteta u Beogradu, upravnik:
prof. dr. Milivoje Kostic, II Interna klinika Medicinskog fakulteta,
upravnik: prof. dr. Djordje Brkic. (Rad je Urednistvo primilo 10-
IX-1953 god.)
        (TRANSPLANTATION
         *bone, in ther. of parathyroprival tetany)
        (TETANY
         *parathyroprival, ther., bone transpl.)
        (BONES, transpl.
         *in ther. of parathyroprival tetany)

BRCIC

The system CaO + SiO₂. I. Branko S. Brčić (Tech. Hochschule, Ljubljana, Yugoslavia). *Monatsh.* 85, 318–24(1954).—The solid-state reaction of CaO with SiO_2 was investigated as a function of furnace temp., furnace length, mixt. compn., and preheating briquet pressure. The extent of reaction was followed by detg. the percentage SiO_2 sol. in 2% HCl. The CaO was added as $Ca(OH)_2$, its activity being increased by the addn. of $Ca(NO_3)_2$. It was found that 575° was the lowest temp. at which the reaction proceeds. The percentage sol. SiO_2 after 6 hrs. heating at 575° for the following addns. to 1 part SiO_2 were: $2CaO$, 0.8; $2Ca(OH)_2$, 4.3; $2Ca(NO_3)_2$, 30.5; $2Ca(OH)_2 + 0.1 Fe_2O_3$, 3.0; $2Ca(OH)_2 + 0.2Fe(NO_3)_2$, 10.0; $2Ca(NO_3)_2 + 0.1Fe_2O_3$, 35.5; $2Ca(OH)_2 + 0.2Ca(NO_3)_2$, 77.5; and $Ca(OH)_2 + 0.1Ca(NO_3)_2$, 40–7%. Both NaCN and KIO_3 are much less effective than is $Ca(NO_3)_2$ in facilitating the formation of sol. silicates. II. *Ibid.* 325–6.—Heating the mixts. of SiO_2 and $Ca(OH)_2$ or $Ca(NO_3)_2$ in a stream of pure air increases the yield of sol. silicate by several fold over that obtained when the solids remain in contact with their decompn. gases. John H. Wood

BRCIC, B.

BRCIC, B.; Slivnik, J. On the synthesis of uranium hexafluoride.
        In English.   p. 47

Vol. 2, May 1955
REPORTS
SCIENCE
Ljubljana

So: East European Accession, Vol. 6, No. 3, March 1957

BRCIC , BRANKO

YUGOSLAVIA/Physical Chemistry - Thermodynamics,   B-8
        Thermochemistry, Equilibria, Physical-Chemical
        Analysis, Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 7, 1958, 20634

Author   : Branko Brcic, Bogdan Volavsek, Jernej Jernejcic.
Inst   : —
Title   : On the Solubility of Chromite in Sulfuric Acid.

Orig Pub : Kemija u industriji, 1957, 6, No 7, 189-191

Abstract : The possibility of chromite (I) dissolution in a little
             excess of H_2SO_4 (50%) in presence of compounds of 6-va-
             lent Cr was investigated. The yield of solute Cr depends
             very much on the diespersion of I. The yield is 67.5%,
             if the particle size was about 100μ and it rises gradual-
             ly with the dispersion increase. An addition of Fe neutra-
             lizes the solution. The method of using an excess of acid
             was used for the preparation of crystalline ferrosulfate
             and of the salt of 3-valent Cr with the necessary degree
                                                        of acidity.
Card 1/1

SLIVNIK, J.; BRCIC, B.; VOLAVSEK, B.; SMALC, A.; FRLEC, B.; ZEMLJIC, R.; ANZUR, A.; VEKSLI, Z.

On the synthesis of, and magnetic measurements on, xenon tetrafluoride. Croat chem acta 34 no.3:187-188 '62.

1. "Jozsef Stefan" Institute for Nuclear Research, Ljubljana, Slovenia, Yugoslavia (for Slivnik, Brcic, Volavsek, Smalc, Frlec, Zemljic, and Anzur.) 2. Institute "Ruder Boskovic", Zagreb, Croatia, Yugoslavia (for Veksli).

BRCIC, Branko S.; JERNEJCIC, Jernej F.

Contributions to the knowledge of the system CaO $\neq$ SiO$_2$. Pt. 4.
Glas Hem dr 25/26 no.8/10:466-468 '60/'61.

BRCIC, B.S.; MILICEV, S.; SIFTAR, J.

Synthesis of calcium metatitanate at low temperature. I. Croat chem acta 33 no.4:169-179 '61.

1. Laboratorij za anorgansko kemijo, Institut za kemijo, Univerza v Ljubljani.

BRCIC, B.S.; GOLIC, L.; PETERNEL, P.; SIFTAR, J.; ZUMER, M.

The CaO — Al_2O_3 at low temperatures. Vest Slov kem dr 9
no.1/2:27-32 Ja-Je '62.

1. Laboratorij za anorgansko kemijo, Institut za kemijo
Univerze v Ljubljani.

BRCIC, B.S.; CUK, M.

Water vapor for preventing pyrophorus in UO_2 powder.
Vest slov kem dr 9 no.3/4:55-56 Jl-D '63.

1. Nuklearni institut "Jozef Stefan", Ljubljana.

BRCIC, B.S.; JERNEJCIC, J.

The $BaO-Ba(NO_3)_2$, $Ba(OH)_2-Ba(NO_3)_2$, and $SrO-Sr(NO_3)_2$ systems.
Vest Slov kem dr 9 no.3/4:65 Jl-D '63.

1. Laboratorij za anorgansko kemijo Instituta za kemijo
Univerze v Ljubljani.

BRCIC, B.S.; BRENCIC, J.; SIFTAR, J;

Synthesis of calcium metatitanate at low temperature. Pt. 2.
Croat chem acta 35 no.2:135-139 '63.

1. Laboratorij za anorgansko kemijo, Institut za kemijo,
Univerza v Ljubljani.

FRLEC, B.: BRCIC, B.S.; SLIVNIK, J.

Studies in the $N_2H_6F_2$-UF_6-HF system. Croat chem acta 36 no.3:173 '64.

1. Jozef Stefan Institute, Ljubljana. Submitted July 15, 1964.

BRCIC, V.

Third Yugoslav Congress in Mechanics. p. 492.   TEHNIKA (Savez
inzenjera itehnicara Jugoslavije) Beograd.   Vol. 11, no. 4, 1956

SOURCE: East Europe Accession Lists (EEAL),
Library of Congress, Vol. 5, no. 11, Nov. 1956

BRCIC, V.

TECHNOLOGY

Periodical: SAOPSTENJA. TRANSACTIONS. No. 6, 1957.

BRCIC, V. An example of applying the photoelastic method. p. 23.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3
                                              March 1959 Unclass.

BRCIC, Vlatko, dr inz.

Photoelastic studies on the state of stresses in the gravity dams with orifices. Saop Inst vodopr Cerni no.12:1-20 '58.

RADOJKOVIC, Milan; BRCIC, Vlatko

Intensity of the pressure centered on the junctions of the
plates in lattice girders. Zbor grad Univ Beograd 5 197-210
'62.

BRCIC, Vlatko, dr inz.

The 6th Yogoslav Congress of Rational and Applied Mechanics.
Tehnika Jug 17 no.10:1848-1850 O '62.

BRCIC-KOSTIC, Mato (Subotica)

Solution of a generalized Fermat equation. Ves mat fiz Srb
no.11:17-22 '59.

BRCIC-KOSTIC, Mato, dr. prof. (Subotica, Aleja Marsala Tita 4); DIRNER, Aleksandar, inz., prof. (Subotica, Brace Radica 38)

House water installations with hydrophore supplied by piston or centrifugal pump. Tehnika Jug 19 no.5:Suppl·Masinstvo 13 no.5:875-884 My '64.

1. Higher Technical School, Subotica.

BRDA, J.; KRAL, F.

"System of Crop Rotation and Mechanized Manuring", P. 719, (ZA
SOCIALISTICKE ZEMEDELSTVI, Vol. 4, No. 7/8, July/Aug. 1954, Praha,
Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12,
Dec. 1954, Uncl.

CZECHOSLOVAKIA

KOPECKY, J.; BRDA, M.; Research Institute of Pharmacy and Bio-
chemistry (Vyzkumny Ustav pro Farmacii a Biochemii), Prague.

"Synthesis of L(+) -2,2'-(Ethylenediimino)-di-1-Butanol (Etham-
butol)."

Abstract /Authors' English summary modified_7: The chemical dis-
cussed is a stereospecific antituberculous agent; it was synthethiz-
ed by hydrogenolytic debenzylation of L(+)-2,2'-(ethylene-N,N'-di-
benzylimino)-di-1-butanol, prepared from optically active 2-benzyl-
amino-1-butanol and ethylenedibromide by alkylation. 10 Western,
2 Czech, 3 Russian, 1 Hungarian reference.

1/1

MILETIC, B.; PETROVIC, D.; HAN, A.; BRDAR, B.

Morphological changes produced by x-rays on animal cells in
tissue cultures. Vojnosanit. pregl. 20 no.7:415-419 Jl '63.

1. Institut "Ruder Boskovic" u Zagrebu, Radioloski odjel.
            (RADIATION EFFECTS)   (TISSUE CULTURE)
                         (CYTOLOGY)

S

MILETIC, B.; HAN, A.; BRDAR, B.; PETROVIC, D.

Quantitative analysis of the survival of animal cells following x-irradiation. Vojnosanit. pregl. 20 no.8:489-494 Ag '63.

1. Institut "Ruder Boskovic" u Zagrebu. Radioloski odjel.
(RADIATION EFFECTS)   (TISSUE CULTURE)
(CYTOLOGY)

S

SMIT; Slavica; MILETIC, Branimir; DRAKULIC, Marija; STAVRIC, Stanislava;
     BRDAR, Branko

Photorestoration of the biosynthesis of nucleic acids in
irradiated bacteria. Biol glas 15 no. 4: 207-214 '62.

1. Institut" Ruder Boskovic", Radiobioloski odjel, Zagreb.

MILETIC, B.; PETROVIC, D.; BRDAR, B.; DRAKULIC, M.

Restoration of irradiated animal cells with isologous subcellular
fractions. Vojnosanit Pregl. 20 no.10:629-635 O '63.

1. Institut "Ruder Boskovic," Zagreb, radiobioloski odjel.

PETROVIC, D.; BRDAR,B.; MILETIC,B.; HAN,A.

Effect of chloramphenicol on the division and survival of
L-strain cells in culture. Vojnosanit.pregl. 20 no.12:
752-757   D'63.

1. Institut "Ruder Boskovic", Zagreb, radiobioloski odjel.

*

YUGOSLAVIA

R. BRDARIC, M. MIHOLJCIC and S. JADRIC, Department of Physiology and
Biochemistry of Medical Faculty (Institut za fiziologiju i Hohemiju
Medicinskog fakulteta,) Sarajevo.

"Paper Chromatography of Rat Salivary and Pancreatic Amylase."

Abstract [English summary modified]: Study of effect of these enzymes
on 1% solution of starch over 10 and 30 minutes, 6 and 24 hours:
paper chromatographic analysis. Main differences were that pancreatic
amylase produced more glucose earlier but both amylases formed sugars
easily; final hydrolysis products differed but slightly. Table, two
paper chromatograms; 18 Western-language references include 1 unpub.
by authors.

1/1

BRDEK, Miroslav, CSc.

Some trends in the development of food product consumption in the member states of the Council of Mutual Economic Assistance. Prum potravin 15 no.10:487-491 O '64.

1. Research Institute of Economic Planning, Prague.

BRDICKA, Miroslav

Brdlčka, Miroslav. Reflection of light by glass with a transparent homogeneous surface coating. Rozpravy II. Třídy České Akad. 57, no. 10, 18 pp. (1947). (Czech)

Source: Mathematical Reviews,   Vol 9 No. 7

Brdička, Miroslav. The reflexion of light from glass with
a transparent homogeneous surface-layer. Acad.
Tchèque Sci. Bull. Int. Cl. Sci. Math. Nat. 48 (1947),
63-70 (1950).

The problem indicated by the title can be reduced to the
solution of a single complex equation, which, however, can-
not be solved by algebraic methods. The present paper
transforms this equation to a real equation of fifth degree,
whose real roots can then be approximated to any desired
accuracy.   M. Herzberger (Rochester, N. Y.).

Source: Mathematical Reviews,   Vol 12.   No. 5.

Brdička, Miroslav. The reflexion of light from glass with
a natural transparent inhomogeneous surface-layer.
Acad. Tchèque Sci. Bull. Int. Cl. Sci. Math. Nat. 49
(1948), 81–89 (1950).
  In the study of the reflection of plane polarized light many
reflecting substances exhibit a feeble elliptical polarization
which is explained by assuming that a thin transparent
surface-layer is spontaneously formed. Drude [Lehrbuch
der Optik, Hirzel, Leipzig, 1900, p. 275] has suggested a
formula for the polarization if the dielectric constant of the
layer is given as a function of its distance from the glass
surface. The author suggests a special formula for this
dependency and then computes from Drude's formula the
polarization. The results are compared with experimental
data obtained by the author.   M. Herzberger.

Source: Mathematical Reviews,   Vol 12 No. 9

S.A.

sect. A

BEDFORD M

Particle   Theory

530.145

2425.   Remark on the proper Lorentz transformation of the Dirac equation. M. BEDNÁŘ. Res-
pravy II. Třídy České Akad., 60, 7 pp. (No. 12, 1950) In Czech.
A general proof is given of the Lorentz invariance of Dirac's equations for a single electron in the absence of any external electromagnetic field.
MATHEMATICAL REVIEWS

C Z E C H

531.25

5320. The equations of compatibility and stress functions in tensor form. M. Brdička. *Phys.*, 3, 36-52 (March 1951) In Russian.

In this paper some new use of the tensor calculus in elasticity is given, concerning principally the equations of compatibility and the integration of the equations of equilibrium by means of the stress functions. There is a 200-word summary in English with numerous references to the mathematical expressions in the Russian text.

Erdicka, M.

Historical remarks on reflection of glass with two thin transparent layers.
P. 227
CESKOSLOVENSKY CASOPIS PRO FYSIKU. (Ceskoslovenska akademie ved.
Ustav technicke fysiky) Praha
Vol. 6, no. 2, Mar. 1956

Source: EEAL - LC Vol. 5. No. 10 Oct. 1956

BRDICKA, M.

Contribution to the general form of Beltrami's equation and Papkovic's colution of the problem of the acis of symmetry of the classical theory of elasticity.

P. 231, (Ceskoslovensky Casopis Pro Fysiku) Vol.7, no.3, 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

BRDICKA, M.

Brdička, Miroslav. On the general form of the Beltrami equation and Papkovich's solution of the axially symmetrical problem of the classical theory of elasticity. Czechoslovak J. Phys. 7 (1957), 262–274. (Russian summary)

The author shows how to get the explicit form of the Beltrami-Michell equations in orthogonal curvilinear physical components by specialization from their contravariant form. He then shows how to derive the Papkovitch solution for axially symmetrical problems by specialization of the general solution of the equilibrium equations. (Since the author makes a point of correcting attributions, the reviewer remarks that what the author calls the Trenin solution (1953) is due essentially to Love [Elasticity, 2nd ed., Cambridge, 1906, § 188] and what he calls the Finzi-Krutkov solution (1934, 1949) is due to Gwyther [Mem. Proc. Manchester Lit. Philos. Soc. 56 (1911–1912), no. 10.}   C. Truesdell.

CZECHOSLOVAKIA/Acoustics - Sound Waves and Oscillations.

Abs Jour : Ref Zhur - Fizika, No 6, 1959, 13903

Author   : Brdicka, Miroslav; Dvorska, Marketa
Inst   : —
Title   : Elastic Coupling Between Longitudinal and Transverse
            Vibrations of Isotropic Rods.

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 4, 508-510

Abstract : A theoretical calculation is made, showing the influence
            of the dimensions of the transverse cross section of
            round and rectangular rods on the frequency of longitu-
            dinal oscillations of these rods. The concept of coef-
            ficient of elastic coupling is introduced, and procedure
            is given for calculating the values of these coefficients.

Card 1/1

65977

24.4100   Z/037/60/000/02/008/018
AUTHORS: Brdička, Miroslav, Nováková-Dvorská, Markéta and
            Dvořáček, Zbyněk

TITLE: On Two Approximate Methods of Computation of Longitudinal
            Oscillation Frequencies of Homogeneous and Isotropic Bars

PERIODICAL: Ceskoslovensky casopis pro fysiku, 1960, Nr 2,
            pp 136 - 146

ABSTRACT: The authors review the two best known approximate
            methods of computation of longitudinal oscillation
            frequencies of rectangular and circular cross-section
            bars, namely, those of Rayleigh (The Theory of Sound, Vol
            I, London 1926, 251-252) and of Giebe and Blechschmidt
            (Ann. d. Phys. 18 (1953), 5, 417, 457). The correction
            introduced by Rayleigh improves the frequency equation
            only for some of the lower oscillation frequencies but
            at higher frequencies there is still a considerable
            divergence between the corrected equation and the measured
            frequencies. A much better agreement between calculated
            and measured frequencies is obtained by the calculations
            of Giebe and Blechschmidt , who derived a frequency
Card1/6   equation on the basis of the theory of coupled oscillations

65977

Z/037/60/000/02/008/018
E073/E335
On Two Approximate Methods of Computation of Longitudinal Oscillation
Frequencies of Homogeneous and Isotropic Bars

of systems with a finite number of degrees of freedom.
The fields of application of both methods and some of
their disadvantages are discussed. The authors also
review the work of Mindlin and Herrmann (Columbia
Univ.,NY, Dept, Civ. Eng., Sept., 1951) (this paper was
not available to the authors - only a review of same by
Malvern - Appl.Mech. Rev. 5, 1951, 1308) and the work
of Mindlin (J. Appl. Phys. 22, 1951, 316), although this
does not relate directly to homogeneous and isotropic
rods. The paper deals in particular detail with the
theories of Rayleigh and Giebe and Blechschmidt, which
formed the starting point of experiments by the authors
of this paper to obtain a better agreement between
calculated and measured frequencies and the result of
this work forms the subject of a separate paper.
The authors conclude that the relative failure of the
Giebe-Blechschmidt theory of longitudinal oscillations
for rods of rectangular and circular cross-section can
be understood by considering the success of this theory

Card 2/6

65977

Z/037/60/000/02/008/018

EO73/E335

On Two Approximate Methods of Computation of Longitudinal Oscillation Frequencies of Homogeneous and Isotropic Bars

for thin tubes. In the latter case, the conception of coupling two suitable oscillation systems leads to results which can be obtained from theoretical consider- ations based on the fundamental dynamic equations of the theory of elasticity and this also explains the good agreement between calculated and measured frequencies. Giebe and Blechschmidt tried to apply this procedure, which was successful for thin tubes, for rods of circular and rectangular cross-section. The thus obtained results are not sufficiently related with the theory of elasticity although in the first series of experiments the measured values of the frequencies of rods of longitudinal and circular cross-section were in good agreement with the values predicted by the coupling theory. It appears that the main difficulty of their theory is their adherence to the dead zone, which is contradicted even by their own measurements. The question arises whether addition of higher frequencies of transverse oscillations would not be helpful in the case; from the point of view of the

Card3/6

65977
Z/037/60/000/02/008/018
E073/E335
On Two Approximate Methods of Computation of Longitudinal Oscillation Frequencies of Homogeneous and Isotropic Bars

Giebe-Blechschmidt theory the value of the coupling
parameter will become important since according to the
conception of both authors the character of the coupling
would no longer be the same. The authors of this paper
believe that the question of coupling parameters is more
complex than appears from the Giebe-Blechschmidt theory,
according to which the magnitude of the coupling parameters
does not depend on the class of longitudinal oscillations
and is equal for all the theories. Its determination from
limit frequencies is also doubtful in spite of the fact
that the results have justified this procedure to some
extent. Thus, the theory of Giebe and Blechschmidt (or
the theory of Giebe and Scheibe) was fully successful
as long as the results obtained were equal to those obtained
by the theory of elasticity, i.e. for thin-walled tubes.
It appears that by introducing coupling between systems
with finite degrees of freedom the laws of the theory of
elasticity are not fully adhered to in the case of solid

Card4/6

65977

Z/037/60/000/02/008/018

EQ73/E335

On Two Approximate Methods of Computation of Longitudinal Oscillation
Frequencies of Homogeneous and Isotropic Bars

rods. Therefore, the authors have attempted to derive
approximate equations for the frequencies of oscillation
of solid rods by another method described in an earlier
paper (Čs.Čas.fys. 8(1958), 508). As starting equations

$$e_{22} = -\sigma e_{11} \quad , \quad e_{33} = -\sigma e_{11} \qquad (2.8)$$

$$\frac{\partial v}{\partial y} = -\sigma \cdot \frac{\partial u}{\partial x} \quad , \quad \frac{\partial w}{\partial z} = -\sigma \cdot \frac{\partial u}{\partial x} \qquad (2.9)$$

were used, where e_{ij} are the strain components and
$u_2 \equiv v$ and $u_3 \equiv w$ are the components of the elastic
displacements in the direction of the y and z axes;
the equations were generalised, i.e. instead of the
Poisson constants σ, the two parameters φ and ψ

Card5/6   were introduced, which as a general rule vary with the

65977

Z/037/60/000/02/008/018
E073/E335

On Two Approximate Methods of Computation of Longitudinal Oscillation
Frequencies of Homogeneous and Isotropic Bars

order of the oscillations and for their determination a
condition is introduced that the appropriate frequency
assumes a steady-state value. Under certain simplifying
assumptions the authors succeeded in obtaining equations
for frequencies, the results of which are approximately
in as good agreement with the measured results as results
calculated according to the Giebe and Blechschmidt theory
and there is the advantage that this method does not rely
on the conception of a dead zone. There are 18 references,
of which 9 are English, 8 German and 1 Czech.

ASSOCIATIONS: Matematicko-fysikálni fakulta University Karlovy, Praha
        (Department of Mathematics and Physics, Charles University,
        Prague)
        Výzkumný ústav matematických strojů, Praha
        (Computer Research Institute, Prague)
        Ústav technické fysiky ČSAV, Praha
Card6/6   (Institute of Technical Physics, ČSAV, Prague)

SUBMITTED: December 1, 1959

89085
Z/026/60/005/001/002/005
B112/B202

16.5000

AUTHOR: Brdička, Miroslav, Docent, Doctor

TITLE: Comments on the paper by František Nožička "On a model in the
            classical two-body problem"

PERIODICAL: Aplikace Matematiky, v. 5, no. 1, 1960, 30-39

TEXT: The author refers to the paper by F. Nožička: O jednom modelu v
klasickém problému dvou těles, Aplikace matematiku 5 (1960), no. 1
(Ref.1), in which a geometrical interpretation of the classical two-body
motion, especially of the revolution of a mass point M_2 with mass m_2 about
a homogeneous sphere M_1 with the radius R and the mass m_1 is discussed. In
the present paper the author derives some results obtained by Nožička by
the conventional method used in classical physics. He proceeds from

Binet's equation: $\dfrac{d^2u}{d\varphi^2} + u = \dfrac{\varkappa m_1}{c^2}$, where $u = 1/r$, $\varkappa$ is the gravitational

constant and $c = r^2\dot\varphi$ is constant according to Kepler's second law. This

Card 1/3

89085
Z/026/60/005/001/002/005
B112/B202

Comments on the paper...

equation has the following solution:

$$r = \frac{\frac{c_o^2}{\varkappa m_1}}{1 + \frac{Ac^2}{\varkappa m_1} \cos(\varphi + \gamma)} .$$

A can be determined from the initial values r_o and v_o of the distance and

the velocity of M_2: $A^2 = \frac{v_o^2}{c^2} - \frac{2\varkappa m_1}{c^2} \cdot \frac{1}{r_o} + \frac{\varkappa^2 m_1^2}{c^4}$. If ψ_o is the angle

between the vectors $\vec{r}_o$ and $\vec{v}_o$, $c = v_o r_o \sin \psi_o$ holds. To determine the boundary line of the two domains in the trajectory plane of M_2 (i.e., in the r, φ plane) within which the end point of $\vec{v}_o$ is to lie in order that M_2 hits or passes by the sphere, the author writes down:
$r_o = R + h$, $\eta = v_o \sin \psi_o$, $\xi = v_o \cos \psi_o$ and obtains the equation of a
Card 2/3

Comments on the paper...

89085
Z/026/60/005/001/002/005
B112/B202

hyperbola for the desired boundary line: $\dfrac{(R+h)(2R+h)}{2\varkappa m_1 R}\eta^2 - \dfrac{R(R+h)}{2\varkappa m_1 h}\xi^2 = 1$

which is in agreement with that obtained by Nožička. There are 2 figures and 9 references: 5 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Matematicko-fysikální fakulta Karlovy university, Praha
(Division of Mathematics and Physics of Charles University, Prague)

SUBMITTED: May 22, 1959

Card 3/3

BRDICKA, R.; KREN, V.; FRENZL, B.; STARK, O.

Interlineal relationships in rats. Folia biol. 8 no.6:352-359 '62.

1. Department of General Biology, Faculty of General Medicine,
Charles University, Prague.
(SKIN TRANSPLANTATION)   (ERYTHROCYTES)   (ANTIGENS)

BRDICKA, R.

Result of ten years' work of the Czechoslovak Academy of
Sciences in chemical science. Chem listy 56 no.11:1281-1295
N '62.

The automatic recording of extinction curves of absorption spectra. R. Brdička AND M. Pavlík. *Collection Czechoslov. Chem. Comm.* 2, No.3, 120 8(1930).—Two mech. devices are described which, when fitted to a spectrograph, enable continuous, auto-matically recorded absorption spectra to be obtained, similar in form to the typical Hartley-Baly curves. The first mechanism, operated by clock work, gives the inner, vertical tube of a Baly absorption vessel a continuous vertical motion in such a manner that the thickness of the absorbing layer of the soln. varies logarithmically with time. The essential part of this device is 2 segments having the shape of a logarithmic spiral, mounted on a uniformly rotating axis. Two vertical bars moving over the edges of the segments translate the movement to the inner tube of the absorption vessel. The absorption vessel consists of a vertical tube, widened at the top, and an inner tube which slides inside the other, both tubes having plano parallel ends. The change in thickness of the soln. layer is observed either on a scale connected to the vertical bars or on a circle mounted on the axis of the segment. The second mechanism governs the uni-form, continuous motion of the photographic plate receiving the spectrum. (Three photographs of app. and 2 typical absorption spectra are given.) In this manner absorption spectra of all required thicknesses can be recorded in 30 min. The app. can be used to obtain photographs of absorption spectra by the usual Hartley-Baly method, and also for the quant. detn. of the abs. values of the mol. extinction coeffs. by Weigert and Hyman's method.—————

E. B. SANIGAR

Investigations on the constitution of the aqueous pink and blue cobaltous chloride solutions. I. Electrodeposition at the dropping mercury cathode. R. Baďička. *Collection Czechoslov. Chem. Comm.* 2, No. K 489–501(1930).—The deposition of Co from pink and from blue solns. of $CoCl_2$ has been studied with the polarograph. The blue solns. contained $CuCl_2$ and the results show that an increase in the concn. of $CaCl_2$ causes the deposition potential of Co to become more positive. The change of deposition potential with diln. was found to be too large when $CaCl_2$ was present, approaching the normal value as the $CaCl_2$ became stronger (e. g., 10 N). From the curves obtained, the ionic valency of Co in the pink solns. was calcd. to be $^1/_2$ while it was 2 in the blue solns. Agreeing with this, Co has been found to deposit reversibly only from the blue solns. (i. e., from solns. contg. about 10 N $CaCl_2$) at room temp. or from less concd. (e. g., 5 N) $CaCl_2$ solns. at temps. near 100°. The cathodic deposition potential of Co from the blue solns. is about 0.3 v. more positive than that from the pink solns. with equal Co content. This indicates a great increase in the activity of the Co^{++} ions in the blue solnt. The irreversible deposition of Co from the pink solns. is supposed to be due to slow dehydration of the pink hydrated ions; the reversible deposition from the blue solns. is thought to be facilitated by the ease of splitting of the blue complexes into dehydrated free Co^{++} ions.   Howard B. Sanigar

ASM-SLA   METALLURGICAL LITERATURE CLASSIFICATION

Constitution of the aqueous pink and blue cobaltous chloride solutions. II.
Spectrometric research. R. Brdička. *Collection Czechoslov. Chem. Comm.* 2, 545–58
(1930).—It has been previously shown (C. A. 24, 5042) that reversible electrodeposition of Co occurs only in the blue solns. of CoCl₂, and at potentials about 0.30 v. more
pos. than the deposition potentials given by the pink solns. These results were explained by postulating the formation of complexes. The present paper deals with
the spectrographic analysis of the solns. used previously for the detn. of deposition
potentials. The absorption spectra were obtained by a continuous automatic method
(cf. C. A. 24, 3441). The results (8 reproductions are given) show that a 10-fold diln.
of the CoCl₂ causes a 10-fold change in the amt. of the blue component. The deposition potentials also indicated that a 10-fold change in the CoCl₂ concn. caused a 10-fold
change in the activity of the cobaltous ions. The effect of increased temp. was found
to be identical with the effect of increase of CoCl₂ concn. The blue color of cobaltous
solns. is due to complexes, in which the Co²⁺ ions assoc. with Cl, forming complexes
of the type $CoCl_x^{(x-2)--}$, e. g., $CoCl_4^{--}$. From the shifts of the extinction curves
given by the blue solns. it is shown that the concns. of the substance causing the absorption in the red region are proportional to the concns. of CoCl₂, and, therefore, to
the concn. of the complexes from which Co deposits reversibly at the dropping Hg
cathode. Fajans' theory, of the dependence of light absorption on the deformability
of the electronic shell of anions when they become deformed in the elec. field of cations,
is used to explain the change from the pink color to the blue color in CoCl₂ solns.

EDWARD B. SANIGAR

PROCESSES AND PROPERTIES UNITS

ASM II A   METALLURGICAL LITERATURE CLASSIFICATION

The deformability of ions. R. Hrdička. *Chem. Listy* 24, 374-9, 398-403(1930).-
Fajan's theory is used to explain many phys. phenomena and chem. properties; the theory remains on a qual. basis but embodies a phys. concept of atoms and ions. The theory cannot be used to explain the color of salts as an absorption of visible radiations due to deformed anions, for the electronic system of cations also absorb in this range. Adsorption may be associated with the deformability of ions: the adsorption depends upon the potential at the interface of two phases. The potential originates in the Helmholtz double layer and depends upon the distance between the opposite charges in the layer. The more deformable ions permit a close approach of the electrons in a shell and force the pos. layer to approach the neg. layer. This increases the adsorption potential and consequently the adsorption.   Frank Markan

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

Polarographic studies with the dropping mercury cathode. XXII. Hydrolysis of cobalt-ous chloride. R. Bařica (Coll. Czech. Chem. Comm., 1931, 3, 396—403; cf. A., 1930, 1254).—The current-voltage curves registered polarographically, when aq. solutions of $CoCl_2$ are electrolysed using the dropping Hg cathode, show an increase in current at approx. —1·05 volt, about 0·2 volt below the increase due to the deposition potential of Co. This gives a "wave" in the curve which becomes more pronounced when the solution is warmed, or when a small amount of alkali hydroxide is added to the solution. The wave disappears entirely after acidification to p_H 4. The first increase in current is probably due to the deposition of Co from the ion $[Co(H_2O)_5OH]'$, the hydrated form of the ion $CoOH'$. At the second increase $[Co(H_2O)_6]''$ ions are deposited. This is possible if the equilibrium $[Co(H_2O)_6]'' + H_2O \rightleftharpoons H' + [Co(H_2O)_5OH]'$ is only slowly established, so that each kind of ion has its own deposition potential at which the complex ion is torn into the simple ions by the action of the strong electric field at the surface of a polarised electrode. M. S. Burr.

Polarographic studies with the dropping-mercury cathode. XXXI. New test for proteins in the presence of cobalt salts in ammoniacal solns. of ammonium chloride. R. Brdička, Collection Czechoslov. Chem. Communications 5, 112-28(in English) (1933); cf. C. A. 26, 3443.—Upon electrolysis of solns. contg. CoCl₂ or cobaltammines. NH₃, NH₄Cl and proteins of various origins, two characteristic waves (the 1st being twice the height of the second) were observed, not coinciding with the protein wave found by Hernovský and Babička (C. A. 26, 4306) on electrolysis of protein solns. in NH₄Cl only. The dependence of the heights of these new protein waves on the concn. of protein, Co, NH₄ ions and NH₃ mols., was studied and in each instance, when the concn. of only one compd. was varied, could be represented by a curve approaching a limiting value as the concn. of the compd. being varied increased. To get the protein waves in presence of Co, the NH₄ ion cannot be replaced by any other. Increasing temp. gave only slight increase of the protein waves, in agreement with the increase of the Co-deposition current caused by more rapid diffusion at higher temps., and also caused the change from the 1st to the 2nd wave to disappear gradually, the 1st growing at the expense of the 2nd. Centrifuged solns., after coagulation of the proteins, gave under the same conditions the same qual. effect as untreated solns., and the same quant. results when the soln. of protein coagulated was sufficiently dil., and when HOAc was used for coagulation. Identical solns. contg. amino acids in 5 × 10⁻⁴ M concn. instead of protein, did not give analogous results on the polarograph curves, except cystine, which enhanced the characteristic protein effect. Since 2 × 10⁻⁴ mol./l cystine gave an effect 800 times greater than that corresponding to its simple reduction, it is concluded the effect is a catalytic one, the catalyzed reaction being H

deposition. The new protein waves can be correlated with the presence of cystine nuclei in proteins. By comparing the effects of cystine and proteins, the constituent of protein producing the polarographic effect is concluded not to be as simple as cystine, or as complex as a protein molecule.   Edward B. Sanigar

Polarographic studies with the dropping-mercury cathode. XXXII. Activation of hydrogen in the sulfhydryl group of some thio acids in cobalt salt solutions. R. Brdička. Collection Czechoslov. Chem. Communications 5, 148-64(1933); cf. C. A. 26, 3144 – The catalyzed deposition of H at the dropping-Hg cathode in the presence of cystine, cysteine, thioglycolic acid, cysteylglycine and glutathione (disulfide and thiol forms) was studied in ammoniacal solns. of $CoCl_2$ in NH_4Cl. From the height of the cystine reduction wave it was detd. that 2 electrons are used in the reduction of 1 cystine mol. This reduction occurred at a more pos. cathode potential than that of the catalytic deposition of H; this suggests that the catalytic effect is due to the reduction product cysteine, and this was confirmed by addn. of cystine to the Co salt solns. NH_3 was unnecessary for the development of the catalytic wave although it increased the rounded max. Further, the max. of the catalytic wave increased simultaneously with that of Co deposition on addn. of NH_3. The catalytic wave was not given in solns. of cobaltic, but only in solns. contg. cobaltous ions. The conclusion that the catalytic wave was due to the sulfhydryl group of cysteine was supported by the results given by the other compds. above. To explain this catalytic reaction the coördinative binding of the sulfhydryl group in complexes of cobaltous ions with thio acids is assumed to give increased protonic activity of this group, causing an increased distance between the H^+ and the pos. nucleus of the S atom. The dipole, $-(S-H)+$, is transported with the cobaltous ions into the negatively chr ... d interface between Hg and H_2O and remains adsorbed there. The potential gradient there deforms the dipole and finally breaks the S-H linkage. This discharged H atom is replaced by H from H_2O, the process thus continuing. For the free progress of the reaction $-S^- + H_2O \rightleftharpoons -SH + OH^-$, the OH ions must be removed from the cathode interface: this can be done by NH_4 ions, or in any suitable buffer mixt. A scheme of oxidation of Co bis-cysteinate is proposed in accordance with the coördinative binding of the sulfhydryl group. The catalytic effect described is highly characteristic and can be used for the detn. of thio acids.   R. B. S

Polarographic studies with the dropping-mercury cathode. XXXIII. Micro-determination of cysteine and cystine in the hydrolyzates of proteins, and the course of the protein decomposition. R. Brdička. *Collection Czechoslov. Chem. Communications* 5, No. 6, 238-53(1933); cf. *C. A.* 27, 3144, 3872.—The catalytic effect of cystine in buffered solns. of CoCl₂ on H deposition at the dropping-Hg cathode can be used for the microdetn. of cystine in protein hydrolyzates. Cystine was detd. in wool, human hair, egg albumin, blood albumin, serum, serum albumin and serum globulin, the results agreeing with literature data. The solns. should contain preferably $5 \times 10^{-4} - 10^{-4}$ g.-mol. of cystine (0.012-0.24 mg. cystine in 10 cc. H₂O), the accuracy of a single detn. then amounting to $\pm 5\%$ of the actual cystine content. The detn. of cystine in 0.0005 g. of human hair is described; coarse, firm human hair was found to contain less cystine than soft, fine hair. In a suitable buffer soln. contg. cobaltammine, the cystine formed during protein hydrolysis had no influence on the polarographic curve, but the intermediate product of protein decompn. gave a considerable effect. This fact was used to investigate the course of the hydrolysis of proteins having a cystine nucleus. The amt. of intermediate product in the soln. attained a max., then decreased again with continued hydrolysis. The kinetics of this process are briefly discussed, and the velocity consts. of the formation and decompn. of the intermediate product in the hydrolysis of wool are roughly detd.   Edward B. Sanigar

PROCESSES AND PROPERTIES INDEX

Polarographic determination of the effect of air on solutions of arsphenamine. RUDOLF REDICKA. *Casopis Ceskoslov. Lekarnictva* 13, 51-62(1933). The amt. of Na and of traces of oxidation products in arsphenamine can be detd. polarographically.

WILLIAM J. HURA

A S B - S L A   METALLURGICAL LITERATURE CLASSIFICATION

CA

PROCESSES AND PROPERTIES INDEX

Polarographic studies with the dropping-mercury cathode. LV. The influence of air on solutions of arsphenamine derivatives. R. Brdička. *Collection Czechoslov. Chem. Communications* 7, 457-66(1935).— Polarographic current-voltage curves were employed to est. the noxious products of oxidation formed by the action of atm. O on arsphenamine derivs. The O oxidizes the group —As:As— to the group —AsO, which greatly increases the toxicity. The method may serve for the standardization of arsphenamine prepns. and might control the toxicol. test. The chief advantage of the method is that very small traces as well as large amts. can be detd. LVI. Investigation of purity of ethyl ether. R. A. Gosman. *Ibid.* 467-75.—By means of an aq. LiOH soln. satd. with Et_2O the peroxide and aldehyde impurities formed in the Et_2O by atm. O were detd. from current-voltage curves. The peroxide substance was electroreduced at an e. m. f. of 1.3 v. and the aldehyde substance at 1.8 v. From the height of the "waves" the amts. of these impurities were estd. 0.25% H_2O_2 and 1% AcOH were easily detd. The polarographic reaction was sensitive enough to show "waves" when ordinary chem. tests failed. The partition coeff. K of these substances between Et_2O and H_2O was detd. For the peroxide impurity $K = 0.46$ with 0.011% in the Et_2O and for the aldehyde $K = 0.63$ with 0.008% in the Et_2O calcd. as AcOH. The aldehyde substance forms from the decompn. of the primary oxidation product, i. e., from the peroxide substance.

W. George Parks

BC

a-1

Polarographic studies with the dropping mercury cathode. LXI. Effect of buffer solutions on the reaction of proteins. R. Brdička (Coll. Czech. Chem. Comm., 1936, 8, 366—376).— The catalytic effect of ovalbumin, peptone, and cystine in lowering the over-potential of the deposition of H ions has been investigated in buffer solutions. The presence of cystine nuclei in the protein is considered essential for the catalytic action.

C. R. H.

ASM-SLA   METALLURGICAL LITERATURE CLASSIFICATION

Polarographic studies with the dropping mercury electrode. IV. Influence of circuit resistance on maxima of current-voltage curves. R. Ruzička (Coll. Czech. Chem. Comm., 1934, 9, 419–433; cf. this vol., 430).—The current max. obtained with $0.01N$-$Hg(NO_3)_2$ in $0.005N$-HNO_3 decreases as the resistance, R, external to the electrolyte is increased. Oscillographically recorded current-time curves for the formation of single drops show that the cathode is unpolarisable at $<$ a sp. e.m.f. and yields large currents $\propto$ the e.m.f. With e.m.f. $>$ the sp. val., the Hg drop is polarised at all stages of growth. The polarisation increases linearly with e.m.f., so that the current always reaches the same val., corresponding with the "diffusion current." The discontinuous fall of current at a polarographic max. occurs at the same e.m.f. whatever the val. of R, and is attributed to the polarisation of drops at the moment of formation. If R is increased, however, the drop becomes depolarised during growth unless the e.m.f. is sufficiently raised, in which case the diffusion current is always attained.

J. G. A. G.

Ca

IIA

Polarographic studies of the denaturation and proteolytic cleavage of proteins. R. Brdička and J. Klumpar. *Casopis Ceskoslov. Lékařství* 17, 234-44(1937); cf. *C. A.* 32, 0126¹.—The action of protein contg. cystine nuclei in buffered Co salt solns. in producing a double wave in the polarogram is discussed. Increase of height of this double wave with concn. of protein tends to reach a limit. The action is primarily due to the catalytic evolution of H from the SH groups ascribed to their coordinated bond with Co, S.S groups being reduced to SH at the dropping Hg cathode. Distinction between SH and S.S groups is made by adding iodoacetate, when the SH group of cysteine is inactivated and the polarographic effect removed, whereas the S.S group of cystine remains unchanged and the polarographic effect persists. Part of the S.S and SH groups of native protein mols. is masked and liberated when the mol. is denatured. It is confirmed that only the free protein S.S and SH groups react polarographically since the height of the protein double wave increases proportionally with addn. of alkali hydroxide. Denatured protein gives a considerable increase to the limiting height of the protein double wave. The height of protein wave is proportional to the concn. of protein mols. at the cathode interface and when this is satd. no further increase in the double wave can take place. Denaturation liberates more active groups and the limit can increase. Three methods based on the above principle are given for the estn. of the proteolytic activity of pepsin.   B. C. P. A.

ASM-SLA   METALLURGICAL LITERATURE CLASSIFICATION

Some problems of modern reaction kinetics. Rudolf Brdička. Chem. Listy 32, 80-2, 90-9, 118-20, 140-60, 173-8 (1938).—In a condensation of 7 monographs B. treats mathematically the potential energies and the kinetics of chem. reactions in gaseous systems, in soln., of org. compds., and of chain reactions.   F. M.

CA

Polarographic studies with the dropping mercury elec trode. LXXXV. Limiting current of the catalyzed elec trode process. R. Brdicka. Collection Czech. Chem. Commun. 11, 614-25(1939).—See C. A. 34, 5761⁴.

Clarence F. Hiskey

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

The constitution of colloidal particles. Rudolf Jirdička. *Casopis Ceskoslov Lékarnictva* 19, 234-0(1010); Chem. Zentr. 1942, II, 3346.—General theoretical observations on the structure of colloidal particles. B. J. C.

2

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The limiting current in the catalytic reduction at the dropping mercury cathode. Rudolf Brdička. Chem. Listy 34, 59-64 (1940).—The diffusion currents of normal reducing processes occurring at the dropping Hg cathode are proportional to the concn. of the active reducing particles. The limiting currents of a catalyzed electroreduction depended not on the concn. of particles participating as catalysts but on the function (which can be derived from the Langmuir adsorption isotherm): $h = h_s \omega c/(1 + \omega c)$, where h_s is the max. height of the double wave, c is the concn. of $CoCl_2$, and ω is a coeff. The function held for exptl. values obtained during the polarographic reduction of albumin in the presence or in the absence of Co. The results indicate that albumin is the carrier of the catalytic-active groups (such as the SH group) which react in the interphase and remain in complete adsorption equil. with albumin in soln. The mechanics of this catalyzed electro-reduction have been ascribed to the slow formation of mol. H which diminishes the overvoltage of H or of the H_2O_2.

Frank Maresh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Rate of recombination of ions derived from polaro-graphic limiting currents due to the reduction of acids. R. Hrdička and K. Wiesner (Charles' Univ., Prague, Czechoslovakia). *Věstník Král. Čes. spol. nauk. Tř. matemat. přírodověd.* No. 18(1943); *Collection Czechoslov. Chem. Communs.* 12, 138–40(1947)(in English). A discussion of the conditions which influence the wave heights resulting from the sep. reduction of the unionized (I) and ionized (II) forms of certain acids at the dropping-mercury electrode. It is pointed out that the more pos. wave represents the concn. of I only if the rate of reaction between II and II$^+$ is very slow. Since this is usually not the case the more pos. wave increases at the expense of the more neg. wave. Equations have been derived which express these conditions quantitatively and as a function of the pH of the soln. and the pK of the acid. On the basis of these it should be possible to calc. the velocity const. k of the reaction A$^-$ + H$^+$ → HA, or the product μk, where μ represents the thickness of the interfacial layer in which the reaction takes place. It is further shown that by evaluating the effects of varying rates of flow of Hg from the capillary the dissocn. const. of the acid could be calcd.

Otto H. Müller

CA

Polarographic investigation of tautomeric equilibria. Rudolf Zahradník. Chem. Listy 39, 35–47(1945).—Correlations between tautomeric equil. and polarographic curves of reducible compds. were established. A new mathematically supported theory was based on the expts. of Müller and Baumberger (C.A. 35, 5027⁷) which were duplicated. A polarographic wave corresponding to the 2-electron reduction of pyruvic acid (I) forms in the range of pH 5.5–7.5 with 2 waves. The height of the original more pos. wave decreases with increasing pH, and the height of the new more neg. wave increases. The sum of the heights of the 2 waves is const, and corresponds to the total concn. of I. Considering the equil. between the keto and enol forms (tautomeric const. K_T) and the dissocn. of the enol (equil. const. K_E) the following equation was derived: $pH = pK + \log[(enolate)^-/(keto)^+(enol)]$, where K expresses the over-all acidity of the system and corresponds to $K = (K_E K_T)/(1 + K_T)$. Theoretical and exptl. evidence proved that the more pos. wave corresponds to the reduction of the tautomers and the more neg. wave to the reduction of the enolate ion. This is in accordance with small enolization tendency of I. I has a pK value of 6.15. Essentially the same results were obtained in the keto-enol systems of colchicine (II), (hydroxymethylene)cyclohexanone (III) and $EtO_2CCH_2CO_2Et$ (IV). II showed a pK value of 10.55, which is close to the values for phenols. The hydroxymethylene form prevails in the equil., as may be judged from the analogous polarographic behavior of II and salicylaldehyde. The pK value of III is 6.37. It produced a 3rd wave in acidic soln., which is without an explanation. The pK of IV is 7. $AcCH_2CO_2Et$ is not reduced and cannot be examd. polarographically. It was possible to discriminate between the ionized form (enolate ion) and the unionized forms (keto + enol), but not between the keto and enol forms.   Milos Hudlický

CA

PROCESSES AND PROPERTIES INDEX

Polarographic determination of the rate of the reaction between ferrohem and hydrogen peroxide. R. Hrdička and K. Wiesner (Charles' Univ., Prague, Czechoslovakia). *Collection Czechoslov. Chem. Commun.* 12, 39-43(1947) (in English); *Chem. Listy* 40, 66-70(1946).—The known shift of part or all of the polarographic H_2O_2 wave toward more pos. potentials in the presence of hemin has been analyzed in detail, and equations have been derived to account quantitatively for the observed phenomena. By expts. it was found that the half-wave potentials of the ferrihem-ferrohem system at different pH values were in good agreement with known oxidation-reduction potentials of this system. It was also established that the polarographic O wave varied with the flow of Hg from the capillary in accordance with the Ilković equation. A study of the dependence of the catalyzed H_2O_2 wave on the concn. of ferrihem made it possible to calc. the quantity μk, where μ is the thickness of the layer in which the catalytic reaction takes place, and k is the velocity const. Variation of this μk value with pH was found to follow the dissocn. curve of H_2O_2. This led to the conclusion that only undissocd. H_2O_2 mols. take part in the reaction and combine with ferrohem. On the assumption of a μ value of 10^{-7} cm. a limiting value of 10^{11} was found for the velocity const. k. The effect of Hg flow on the catalytic wave was in agreement with theory. A similar catalytic H_2O_2 reduction was further found in salicylaldehyde ethylenediimine ferrichloride.   Otto H. Müller

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

4

The mechanism of the polarographic reduction of pyruvic and phenylglyoxylic acids. R. Brdička (Charles Univ., Prague) *Chem. Listy* 40, 212 8(1946); *Collection Czechoslouak Chem. Commun.* 12, 212 26(1947)(in English). The occurrence of two polarographic waves of pyruvic acid has been ascribed by Muller and Baumberger (C.A. 33, 8088) to the keto and the enol forms, but this contradicts the results of Arndt and co-workers (C.A. 33, 8088), who found the enolizing tendency of pyruvic acid very small. Neither is it possible to bring the latter results into accordance with Brdička's modified explanation deduced from the polarographic results and based upon the dissocn. of the enolate. The only possibility is to explain the occurrence of the two waves by ascribing the more pos. one to the undissocd. mol. and the more neg. one to the anion. This point of view was confirmed by the occurrence of two waves also in buffered solns. of phenyl-glyoxylic acid, in which enolization is out of the question, and by the fact that the esters of pyruvic acid and phenyl-glyoxylic acid give (as long as they are not hydrolyzed) one polarographic wave only. Since the apparent dissocn. consts. of the acids, calcd. from these curves, do not agree with their true consts., the idea was introduced that the diffusion current due to the reduction of undissocd. mols. is increased by the rate of recombination of ions taking place in the electrode interphase (C.A. 41, 5102). From the apparent dissocn. const. and the true one, the kinetic const. of the rate of recombination turns out to be of the order of 10^9 to 10^{11} sec.$^{-1}$ (mol./liter) for the acids investigated. The difference of 300 mv. between the half-wave potential of the polarographic wave due to the mols. and that due to the anions is explained as being caused by the change of conjugation which the undissocd. mol. undergoes through dissocn. The 16,000 cal./mol., corresponding to the shift of potential of 300 mv., give the free-energy change of the formation of the carboxylic anion from the undissocd. mol.

Landon A. Sarver

15

Rate of Recombination of Ions Derived from Polarographic Limiting Currents Due to the Reduction of Acids. (In English.) R. Brdicka and K. Wiesner. *Collection of Czechoslovak Chemical Communications*, v. 12, Mar. 1947, p. 138-149.

A fundamental study of polarographic reactions is made, and equations are derived which allow calculation of certain factors such as reaction-rate constant, thickness of interface layer, etc. Change of limiting currents with outflow velocity of mercury is discussed and the possibility of determining dissociation constant of the acid on the basis of polarographic measurements is pointed out.

Polarographic limiting currents of formaldehyde as a measure of its dehydration rate. K. Veselý and H. Brdička. Collection Czechoslov. Chem. Communs. 12, 313-32(1947)(in English); cf. Wiesner, C.A. 37, 6805[2]; Brdička, C.A. 38, 14[1].—Polarographic limiting currents on buffered solns. of CH$_2$O show an exceptional dependence on pH. At neutrality the limiting current is less than $1/_{10}$ and at a pH of 13.5 less than $1/_5$ of the diffusion current as calcd. by the Ilkovic equation (calcn. based on the diffusion coeff. of MeOH and on the reduction of CH$_2$O with 2 electrons). In dil. aq. soln. CH$_2$O exists mainly in the hydrated form which cannot be reduced polarographically. The limiting current depends therefore on the rate of dehydration of methyleneglycol, since the free aldehydic form can be reduced. The kinetic consts. for the basic catalysts of the dehydration were calcd. (on the basis of one mole with the $\rangle$C—O bond for

$$10,000 \text{ moles with the } -\overset{|}{\underset{|}{C}}-O- \text{ bond}). \text{ They are}$$

$K_{OH} = 1.2 \times 10^4$, $K_{HPO_4} = 36$, and $K_{H_2O} = 1.8 \times 10^{-4}$. The acid dissocn. const. of CH$_2$O at 20° is 4×10^{-14}. Acid catalysis of dehydration could not be fully investigated because of the interference of H$^+$ waves in acid solns. Results confirm V. and B.'s kinetic conception of the limiting current.   Gerald Reed

Measurements of quantities concerning the adsorption of certain reducible compounds or their reduction products at the dropping-mercury electrode. R. Brdička (Charles Univ., Prague). *Collection Czechoslov. Chem. Commun.* 12, 522-40(1947); cf. *C.A.* 37, 5061⁰ᵃ.—B. has generalized the adsorption theory previously proposed to explain the anomalous polarograms of certain reversible org. oxidation-reduction systems. Theoretically the polarographic curve should have the same shape as the corresponding potentiometric titration curve and the half-wave potential and normal oxidation-reduction potential should be the same. If one of the oxidation-reduction forms should be adsorbed on the Hg drops, the free energy change which occurs will shift the polarographic wave to more neg. potentials if only the oxidized form is adsorbed; and to more pos. values if only the reduced form is adsorbed. At low concns. of the oxidation-reduction system the Hg drops will be unsatd. and a single wave will appear. Above a certain concn. 2 waves appear: an "anomalous" wave and a normal wave. The height of the "anomalous" wave is independent of concn., since it corresponds to satn. of surface of the drops with adsorbed compd. It will follow the normal wave at more neg. values if the oxidized form only is adsorbed (e.g. phenosafranine), or precede the normal wave at more pos. potentials if the reduced form only is adsorbed (e.g. methylene blue and lactoflavin). The height of the "anomalous" or adsorption curve is a measure of the adsorption current from which can be evaluated the max. no. of adsorbed mols. per unit area of drop surface. From the difference between the half-wave potentials of the adsorption and diffusion currents the Hückel adsorption coeff. can be calcd. If some plausible value is assumed for the vol. of the adsorbed mols. the free energy of adsorption can be detd. The adsorption current varies directly with the height of the Hg reservoir. Finally, if both oxidation-reduction forms are adsorbed equally, the polarogram should be normal. Data from previous articles are used to test the theory.

David Lewis

C A

Decomposition of lactoflavin by light. Rudolf Brdička (Bulovka Hosp., Prague). *Collections Czechoslov. Chem. Communs.* 14, 130-44(1949)(in English). — Light decompn. of lactoflavin (I) was studied polarographically to det. the products of photolysis which were oxidized or reduced at the dropping-Hg electrode. Solns. of I, freed of air by bubbling in H₂, were irradiated with a Hg lamp for given time intervals and dild. in 1:5 ratio with buffer solns. over the pH range 1.8-12. Lumichrome (II) appeared over the entire pH range and showed a reduction wave distinct from that of I. In some cases the amt. of II was as great as 50% of the original amt. of I, owing to the change of half of I to dihydroflavin (III). Different polarographic findings were obtained in slightly alk., neutral, and acid media. Two new waves with heights equiv. to that of II and with half-wave potentials of -1.005 and -1.85 v., resp., were detected in a soln. of pH 12. The first wave was due to CH₂O, and from the potentials of the corresponding sugar homologs, the second was attributed to erythrose; these resulted from decompn. of the dehydrogenated sugar chain, and their formation suggested the sugar decompn. might have occurred as :NCH₂CO(CHOH)₂CH₂OH + H₂O → :NCH₂OH + CHO(CHOH)₂CH₂OH, :NCH₂OH → HCHO, accompanied by reduction of the flavin as indicated by a shifting of the wave of I into the range of anodic currents. The reaction mechanism suggested is capture of a H atom from the second C atom of the sugar chain by N atom 1 with formation of free radicals in the nucleus and in the side chain, followed by union of the free radicals to give a mol. with a nucleus of III and a side chain with a CO group on the second C atom. In a neutral soln. (pH 6.8), a smaller amt. of II was formed as well as a reduced product assumed to be deuterolactoflavin. It had a more pos. potential than I. CH₂O in amts. equiv. to II was the only decompn. product of the sugar chain. In acid soln. (pH 1.8), decompn. of I was very slow, less II was formed, and no cleavage products of the sugar chain appeared polarographically.   Helen L. Whidden

AI - 8

BA

Sixtieth birthday of Prof. J. Heyrovsky. R. Hnlicka (*Coll. Trav. chim. Tchécosl.*, 1950, 15, 691—698).—A biography, with stress on the scientific achievements, of Heyrovsky.   W. J. Baker.

cA

Jaroslav Heyrovsky. R. Brdička. *Chem. Listy* 44, 277–80(1950).—Survey of scientific activities up to 1950. M. Hudlicky (with portrait).

1951

CA

The effect of the ionic recombination on the polarographic reduction of dibasic acids. V. Hanuš and R. Brdička (Charles Univ., Prague). Chem. Listy 44, 291-7(1950). Equations have been derived which account for the effect of ionic recombination on the polarographic limiting currents caused by the reduction of the undissocd. mols. or anions belonging to dibasic acids. As long as the limiting reduction currents of the undissocd. mols. appear in the range of pH where these mols. are practically absent in the range of the soln., their variation with pH can be expressed only of the soln., their variation with pH can be expressed as follows: $2pH = pK'_2 + \log(i_{lim}/i_{ind}) \log([H^+] + K_2)$. Here, i_{lim} denotes the limiting reduction current of univalent anions, K_2 the 2nd acid dissocn. const., and pK'_2 corresponds to the first apparent polarographic dissocn. const. which is a definite function of the equil. dissocn. const. of the specific rate because of the ionic recombination and of the drop time owing to the capillary electrode. The equation concerned shows that the apparent polarographic dissocn. curve for dibasic acids is not, in general, a symmetrical one, and it can be twice as steep as the dissocn. curve owing to univalent acids. All the relations derived theoretically have been verified by exptl. data obtained with maleic, citraconic, and fumaric acids. The thickness of the reaction layer surrounding the surface of the capillary electrode (according to the Wiesner statistical conception) and the abs. rate const. of ionic recombination for the above acids have been computed. Milan Hudlický

1951

BRDICKA, R.

Atomic energy. Cas. cesk. lek. 63 no.14 157-163 July 1950.

(CLML 20:1)

C A

The sixtieth birthday of Professor J. Heyrovský. R. Brdička. Collection Czechoslov. Chem. Communs. 15, 691-8 (1951)(in English); cf. C.A. 45, 3207a.—Biography with portrait.   R. H.

BRDICKA, R.

24(2,4)   PHASE I BOOK EXPLOITATION   CZECH/2433

International Polarographic Congress. 1st, Prague, 1951

Sbornik I. Mezinarodniho polarografickeho sjezdu. Dil 3: Hlavni
referaty prednesene na sjezdu. Proceedings...Vol 3: Reviews
Read at the Congress. Praha, Prirodovedecke vyd-vi (1952)
774 p. 2,000 copies printed.

Resp. Ed.: Jiri Koryta, Doctor; Chief Ed. of Publishing House:
Milan Skalnik, Doctor; Tech. Ed.: Oldrich Danka.

PURPOSE: The book is intended for chemists, chemical engineers,
and physicists.

COVERAGE: The book is a collection of reviews and original papers
read at the International Polarographic Congress held in Prague
in 1951. Uses of polarography in organic and inorganic analysis,
biochemistry, medicine, and industrial chemistry are discussed.
In this section, Reviews Read at the Congress, Russian and
either German or English translations of each review are
presented. In the section, Original Papers Read at the Congress,
only those translations in Russian, German, and English which
have not been published in Volume I are presented. The
following scientists participated in the opening of the
Congress: Professor Wiktor Kemula, Dean of the Faculty
of Sciences, Warsaw; Doctor Jaroslav Heyrovsky, Chairman of
of Planning; Professor Jaroslav Pukatko, Chairman
the Congress; and Professor Jaroslav Pukatko, Chairman
of the Center for Scientific Research and Technical
Development. References follow each paper.

Forejt, J. Apparatus for Oscillographic Polarography   241
    [Russian Translation]   250
    [German Translation]   259

Heyrovsky, J. Oscillographic Polarography   268
    [Russian Translation]   273
    [English Translation]   279

Brdicka, R. Kinetics of Electrode Processes in Polaro-   286
graphy

Card 3/14

Arend, H.T. Polarographic Study of Basic Trivalent   395
Chromium Salt Systems

Krivanek, M. Complexes of Iron with Saccharose   399

Dratovsky, M. and M. Ebert. Effect of Gelatin and Thymol 404
on Cathodic Deposition of Cations at a Dropping Mercury   407
Electrode   410
    [Russian Translation]
    [German Translation]

Kuta, J. Study of Hydrogen Overvoltage With a Mercury   413
Electrode With Controlled Dropping Time

Dvorak, J. Effect of Capillary Constants on the Maximum   418
of Oxygen   421
    [Russian Translation]   423
    [German Translation]

Vavruch, I. Attempt to Classify Refined Sugars by the   427
Polarographic Method
    [Russian Translation]
    [German Translation]

ORIGINAL PAPERS READ AT THE CONGRESS

Kalousek, M. and A. Tockstein. Validity of the Nernst   286
Equation in the Deduction of the Polarographic Wave Equa- 332
tion

Vlcek, A.A. Polarography in Concentrated Sulfuric Acid   359
    [Russian Translation]   366
    [German Translation]   370
    [English Translation]   373

Valenta, P. Study of Current Discontinuity Appearing on   377
a Calomel Beam Electrode

Masek, J. Discontinuity on Polarographic Curves observed

SEDICKA, N.

Evaluation of the rate constant of the decomposition of hydrogen peroxide by catalase from the polarographic limiting current of oxygen. L. Kousecki, R. Brdicka, and V. Hanus (Czech. Acad. Sci., Prague). Collection Czech. Chem. Communs. 18, 611-28(1953)(in English), Chem. Listy 47, 793-805(1953).—Previous interpretations of the effect of catalase on the polarographic limiting currents due to the reduction of O were revised. Calcns. of the rate const. based on the concept of a reaction layer at the electrode were of only limited value. A rigorous soln. was given of the appropriate system of differential equations, taking into account the growth of the Hg drop, for a reaction in which half the originally present reactant (O) was regenerated from the reduction product (H_2O_2) by a chem. reaction with the catalyst (catalase). Values for the resulting function were tabulated, and the rate consts. calcd. by means of it were in good agreement with values obtained by direct manganometric measurements. Otto H. Müller

BRDICKA, R.; HANUS, V.; KOUTECKY, J.

Brdicka, R.; Hanus, V.; Koutecky, J. "Calculation of the rate constant for the decompos-
tion of hydrogen peroxide by catalase from polarographic limiting currents caused by
oxygen. p. 793 CASOPIS PRO PESTOVANI MATEMATIKY. CZECHOSLOVAK MATHEMATICAL JOURNAL.
Vol. 47, no. 6, June 1953, Praha, Czechoslovakia.

SO: Monthly List of East European Accessions, LC., Vol. 3, No. 1, Jan. 1954, Uncl.

C Z E C H

Polarographic limit currents controlled by the velocity of the chemical process. Rudolf Ericka. *Chem. Prumysl* 4(29), 257-02(1954).—A review and definition of the term limit currents with reference to their discovery by Wiesner in 1943. Examples are given: polarographic reduction of $HCHO$ and aldehydic sugars and polarographic reduction of UO_2^{++} to the unstable 5-valent form.

L. A. Helwich

Brdicka, Rudolf

CZECHOSLOVAKIA/Electrochemistry   B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26303

Author   : Rudolf Brdicka
Title   : Kinetics of Reactions Preceding of Following Electrode Process.

Orig Pub : Chem. zvesti, 1954, 8, No 10, 670-692

Abstract : Detailed review of works concerning the precise and approximate
           solutions of problems connected with kinetic limitations of
           currents in polarography. Bibliography with 56 titles.

Card   : 1/1

Brdicka, Rudolf

Evaluation of the rate constants of reactions involved in polarographic electrode processus. Rudolf Brdička. Collection Czechoslov. Chem. Communs. 19, Suppl. 2, 41–57 (1954); Proc. Intern. Congr. Pure and Appl. Chem., 13th Congr. Stockholm 1953 (in English).—The various theoretical treatises dealing with kinetic polarographic currents were reviewed and compared. Rate consts. of (a) recombination and (b) dissocn. were calcd. for 20 acids with pKs varying from 1.2 to 6.05. The consts. ranged from 8.41×10^4 to 1.94×10^{13} l./mole sec. and from 2.43×10^2 to 7.20×10^{10} per sec., resp.   Otto H. Müller

BRDICKA   RUDOLF

Polaregraphic limiting currents of formaldehyde in un-buffered solutions. Rudolf Brdicka (Lab. pro fys. chem. ČSAV, Prague). (???, ??? ??, 1158-68(1954).—New exptl. data on limiting polarographic currents of HCHO (I) in borate buffer and NaOH solns. are reported. From these data the values of the products: $K_h.K_{OH}$, $K_h.K_{???}$, and $K_h.K_{H_2O}$ have been computed by a rigorous method (Koutecky, cf. following abstr.); K_h is the hydration equil. const. of I, the k's are the rate consts. of corresponding bases which catalyze the dehydration of I and det. Its limiting reduction currents in addn. to the diffu-sion. From these values the limiting currents of I in un-buffered KCl solns. are calcd., where the hydration is cat-alyzed in addn. to the H_2O by the OH^- ions formed by the electroreduction of I. The nonlinear dependence of the limiting currents on the concn. of I and their abs. values calcd. from an approx. relation are in agreement with exptl. data.   E. Erdös

BRDICKA, R.

Polarographic limiting current of formaldehyde in unbuffered sloutions. In German.
p. 387

Vol. 20, no. 2, Apr. 1955
SBORNIK CHEKHOSLOVATSKIKH KHIMICHESKIK RABOT
Praha, Czechoslovakia

So: Eastern European Accession Vol. 5, No. 4, April 1956

CZECHOSLOVAKIA/Physical Chemistry. Kinetics. Combustion.
          Explosions. Topochemistry. Catalysis.   B-9

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42587.

Author : Brdicka Rudolf, Spurny Zdenek.
Inst   :
Title   : Kinetics of Radio-Oxidation of Cystine in Aqueous
          Solutions.

Orig Pub: Chem. listy, 1957, 51, No 7, 1267-1273.

Abstract: Soft x-rays (50 kv) accelerate oxidation of cystine
          (I) in solution, in the presence of O_2 of the air.
          Decrease of I, which is oxidized probably to di-
          sulfoxide, was studied by the authors by the polaro-
          graphic method in ammoniacal solutions of $CoCl_2$.
          Kinetics of radio-oxidation was measured in the case
          of 10^{-3} - 10^{-6} M solutions of I at dosage rates of

Card   : 1/2

18

CZECHOSLCVAKIA/Physical Chemistry. Kinetics. Combustion.
        Explosions. Topochemistry. Catalysis.   B-9

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42587.

        33 roentgens/second. The graph representing the
        ratio of reaction yield G at pH 3 to the initial
        concentration has the configuration of a parabola,
        i.e., G is approximately proportional to the square
        root of the concentration of $\underline{I}$. At dosages exceeding
        18 . 10^{17} Ev/ml, deviations from the above stated
        correlation, occur, which the authors attribute to a
        probable regeneration of $\underline{I}$ from the disulfoxide.

    Card   : 2/2

CZECHOSLOVAKIA / Physical Chemistry. Radiation Chem-   B-10
             istry. Photochemistry. Theory of the
             Photographic Process.

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 76767.

Author   : Brdicka, R. and Spurny, Z.
Inst   : Not given.
Title   : The Kinetics of the Radio-Oxidation of Cystine
           in Aqueous Solutions.

Orig Pub: Collect Czechoslov Chem Commun, 23, No 4, 561-
          568 (1958) (in German with a Russian summary).

Abstract: See RZhKhim, 1958, 42587.

Card 1/1

46

Z/037/60/000/01/001/014
E073/E535

AUTHOR: Brdička, R., Academician

TITLE: Academician Jaroslav Heyrovský, Winner of the 1959
             Nobel Prize for Chemistry

PERIODICAL: Československý časopis pro fysiku, 1960, Nr 1,
             pp 1-2 + 1 plate

ABSTRACT: Brief outline of the career of this well known scientist
             who has done pioneering work in the field of polarography.
             Professor Heyrovský is the Director of the Central
             Institute for Polarography, Czechoslovak Academy of
             Sciences. In 1951 he was awarded the first State Prize
             for research in oscillographic polarography and in 1955
             he was decorated with the Order of the Czechoslovak
             Republic.

Card 1/1

Z/008/60/054/012/001/004
E073/E335

AUTHOR: Brdička, R,

TITLE: On the Seventieth Birthday of Academician Heyrovský

PERIODICAL: Chemické listy, 1960, Vol. 54, No. 12,
            pp. 1219 - 1227 + 3 plates

TEXT: In 1950 the Ústřední ústav polarografický
(Central Polarography Institute) was created which, under the
leadership of Professor Heyrovský, was transferred two years
later to the ČSAV. In 1951, Professor Heyrovský and the most
able members of his team organised the First International
Polarography Conference which was held in Prague. In 1952, a
conference of practical polarography was held in Bratislava and
at the Thirteenth International Congress of Pure and Applied
Chemistry in Stockholm an entire section was reserved for
polarography. In 1954, polarography discussion meetings were
held at Smolenice with foreign participation. In 1955,
polarography topics were discussed at the Congress of Electro-
chemistry in Warsaw and the First Czech-Hungarian Polarography
Conference: the communications presented at the latter were

Card 1/3

Z/008/60/054/012/001/004
E073/E335

On the Seventieth Birthday of Academician Heyrovsky

published in Vol. 9 of Acta Chimica (Hungary). Several other
congresses are mentioned in which polarography was discussed,
particularly the Second International Polarography Congress
held at Cambridge, England. In 1958, Professor Heyrovský
lectured in China. In 1960, he lectured in Egypt. He was
awarded the Nobel Prize in 1960. During the last twenty
years Professor Heyrovský has paid most attention to oscillo-
graphic polarography. In spite of his numerous administrative
responsibilities he still devotes a certain amount of time
to laboratory work. He studied various types of curves
produced on an oscillograph screen, using an impressed
alternating current, i.e. curves of the dependence of the
potential of a mercury drop or of a jet electrode on time and
the dependence of the change with time of this potential on
time or voltage. He considers the study of this dependence
to be of the utmost importance since it provides new views
on the nature of electrode processes and, in some cases, it

Card 2/3

Z/008/60/054/012/001/004
E073/E335

On the Seventieth Birthday of Academician Heyrovský

enables analysis at lightning speed of investigated specimens.
Professor Heyrovský is following closely the problems relating
to hydrogen overvoltage, electrode reversibility of oxidation-
reduction systems, current maxima, the influence of surface-
active substances on electrode processes and other problems,
to the solution of which he has contributed directly or
indirectly. He guides and coordinates his team in their
research work. He also takes an active interest in the
development of polarographic and oscillographic apparatus
and other experimental equipment. A list is included at the
end of the paper of the books and papers published by
Professor Heyrovský. This list includes 170 papers published
in periodicals, 16 papers published in books and 12 books.

Card 3/3

STARK, O.; KREN, V.; FRENZL, B.; BRDICKA, R.

Attempt to induce a "graft versus host" reaction in grown tolerant chicks and the causes of its failure. Folia biol. 7 no.4:243-251 '61.

1. Department of Biology, Faculty of General Medicine, Charles University, Prague.
          (TRANSPLANTATION immunol.)   (SKIN TRANSPLANTATION immunol.)

CZECHOSLOVAKIA

BRDICKA, R; SPURNY, Z; FOJTIK, A.

    Institute of Physical Chemistry and Institute of Nuclear
        Research of the Czechoslovak Academy of Sciences, Prague

    Prague, Collection of Czechoslovak Chemical Communications,
        No 6, 1963, pp 1491-1498

    "Effect of the Dose Intensity on the Rate of Radio-Oxidation
        of Cystine in Aqueous Solutions."

BRDICKA, R.; SPURNY, Z.; FOJTIK, A.

Effect of the dose intensity on the rate of radio-oxidation of cystine in aqueous solutions. Coll Cz Chem 28 no.6:1491-1498 Je '63.

1. Institute of Physical Chemistry and Institute of Nuclear Research, Czechoslovak Academy of Sciences, Prague.